

Mitsubishi FX PLC Ethernet Adapter FS-ETH-SC09

USER MANUAL



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Introduction

Thanks a lot for your choosing our products.

Before you use, please be sure to read this manual carefully, you will know its powerful and perfect function and simple use.

The main function of the product is the data communication between the Mitsubishi FX series PLC (FX0N/FX1N/FX2N/FX3U/FX3G.....) through the programming interfaces or FXxx-422-BD interface board and Ethernet, Internet and 3G wireless internet,. Please use according to the technical specification and parameter in the manual , we are not responsible for the loss and the personal injury due to the user's misoperation.

We have the right to revise the content of the manual & the function of our product with the development of the technology before we do not state.

Copyright Notice

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Version Info

Document name: USER MANUAL Of FS-ETH-SC09

Version: V2.0

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Relevant Documents

In order to use the FS-ETH-SC09 better, you also need to read the following documents:

1. Device Manager Parameters setting software manual
2. **VCOMM** virtual Serial Port software Manual

Content

- 1.FS-ETH-SC09 1PC
2. RJ45 Cable 1 PC,2 M
- 3.CD 1PC

(1) Characteristics & Technical Parameters

FS-ETH-SC09 is the industrial product which use the Ethernet and Internet or 3G wireless internet to achieve Mitsubishi FX series PLC networking communication. It integrates a number of complex network protocols, supports TCP Server, TCP Client, UDP unicast, UDP multicast etc many modes. It has 10M/100M adaptive Ethernet interface and RS422 interface which meets Mitsubishi technical specifications. You only need to go on simple setting and then let the FX PLC go on Ethernet/Internet communication.

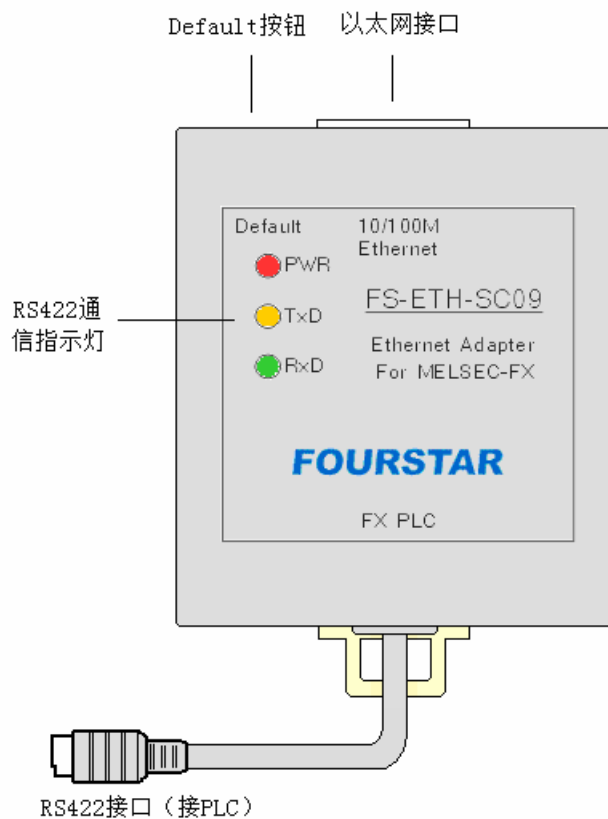
Mitsubishi FX Series PLC refers to FX0/FX0S/FX0N/FX1N/FX2N/FX3U/FX3G

FS-ETH-SC09 is an industrial grade product, its RJ45 port and RS422 interface are both isolated in order to suit harsh environment in the industrial situations. Especially each signal pin has anti-static protection and surge protection, which can effectively protect the PLC communication port from outside surges and the impact of common-mode inductance.

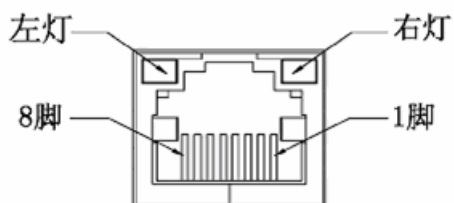
Notice: when the FS-ETH-SC09 is used to communicate between the PC and the FX series PLC or between PLC and PLC, it supports the RS422/RS485/RS232 communication which meet UART serial data communication standard. Some field buses such as PROFIBUS, PPI, MPI, CC-Link, PC-Link, etc., although the physical interface is RS485, they do not comply with the UART serial data format, so they do not apply to this product!

- ◆ High-speed, highly reliable industrial-grade standard, anti-interference design for harsh electromagnetic environment
- ◆ 32 bit RISC (NP7 series) ARM7TDMI 55DMIPS
- ◆ 128KB SRAM, 128KB Code + 32KB Boot
- ◆ 10M/100M adaptive Ethernet interface
- ◆ Support RS422/RS485 data bits 5,6,7,8 settable
- ◆ Support RS422/RS485 stop bit 1,1.5,2 settable
- ◆ Support RS422/RS485 parity NONE, ODD, EVEN, MARK, SPACE settable
- ◆ Support RS422/RS485 baud rate 110 ~ 115200bps standard rate settable
- ◆ Support the RS422/RS485 communications which meet UART serial data communication standard, do not support field bus protocol.
- ◆ Smart protocols: TCP, UDP, ARP, IP, ICMP, DHCP, BOOTP, DNS
- ◆ Support dynamic DNS
- ◆ Working mode can be TCP Server, TCP Client, UDP multicast and unicast UDP
- ◆ Built-in Flash memory, can save the setted parameters
- ◆ Support Windows 95/98/ME/NT/2000/XP/2003/XP/Win7 operating system, Vista is not recommended
- ◆ RJ45 port 1500VDC electromagnetic isolated, RS422 interface 1500VDC electromagnetic isolated,
- ◆ Interface protection: power supply port has the reverse polarity protection and over current protection, RS422 interface has the surge protection ;all pins and terminals have anti-static protection.
- ◆ 5V±10% DC power supply from FX series PLC RS422 socket, 1W power
- ◆ Dimension: L × W × H = 65mm × 51mm × 26mm, 35mm Standard rail mounting
- ◆ Operating Temperature: -40 ° C to +80 ° C (-40 ° F to 176 ° F), 5% to 95% RH (industrial grade)
- ◆ Storage Temperature: -40 ° C to +80 ° C (-40 ° F to 176 ° F), 5% to 95% RH

(2) External structure & pin definition



Ethernet interface: Standard RJ45 socket, automatically adapt 10M/1000M Ethernet .Use the standard network cable, not crossover cable whether you connect the switch or directly connect to the PC.



The network status LED indicator on the RJ45 socket

LINK LED (left, green)		ACT LED (right, yellow)	
condition	description	condition	description
Regular light	Network cable is connected correctly, work properly.	flash	Sending and receiving data through the RJ45 port
flash	Network cable is not plugged in, no available network.	extinguish	No data transceiving

Ethernet interface RJ45 socket signal definition

Pin	Signal Name	Function	Type
1	Tx+	Positive phase differential signal line of Ethernet data sending	output
2	Tx-	negative phase differential signal line of Ethernet data sending	output
3	Rx+	Positive phase differential signal line of Ethernet data receiving	input
4	Not used		-
5	Not used		-
6	Rx-	negative phase differential signal line of Ethernet data receiving	input
7	Not used		-
8	Not used		-

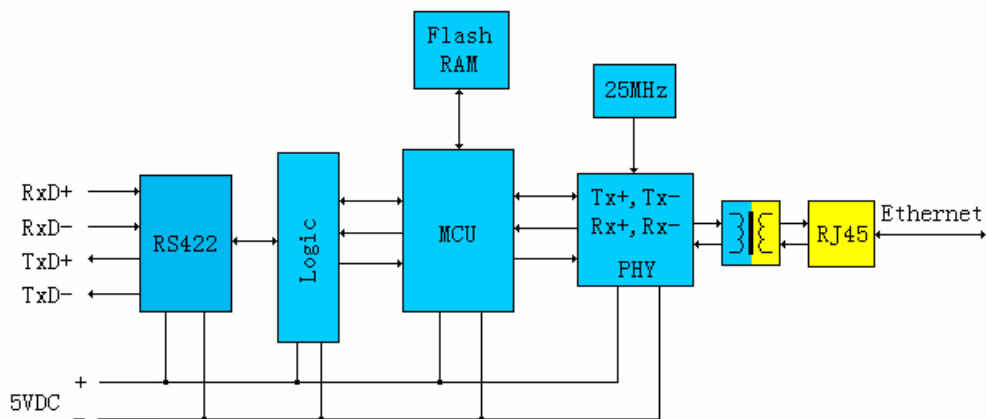
Default Button: Restore the default setted parameters. Insert the penpoint into the hole to press the button for about 1 second, the internal Flash memory parameters will restore to factory default parameters: IP = 192.168.0.250, Username = admin, Password = admin. When you forget the IP address,user name or password, you can restore to the factory default parameters,and then reset the parameters

RS422 Interface: RS422 interface is the MD8M-pin plug which meets the Mitsubishi FX Series PLC technical specifications, the signal array match FX series PLC programming interface, and has a 0.5 meter cable, you just simply plug the MD8M directly into the FX Series PLC programming interface outlet, also can insert into FXxx-422-BD interface board.

RS422 communication indicator: there are three LED lights on the panel and its working state as follows:

Indicator	Regular light	Flash	Extinguish
PWR(Red)	normal	Error	Error or no power supply
TxD (yellow)	Error or reversal signal polarity	Serial port is receiving the data	Error or no communication
RxD (green)	Error or reversal signal polarity	Serial port is sending the data	Error or no communication

(3) Inner diagram



(4) The parameters set of FS-ETH-SC09

FS-ETH-SC09 needs to be configured the parameters to work correctly, the configuration parameters including the network parameters, communication protocols, connection, serial port parameters; it can be very flexible to satisfy your application. Configuration parameters are stored in the Flash memory, and they can be permanently stored without loss.

Plug the FS-ETH-SC09 into the FX Series PLC programming port and power on the PLC. Then use the standard

RJ45 cable to connect the FS-ETH-SC09 and router or switch, at the same time make sure that the router or switch is connected to a computer in order to set the parameters of FS-ETH-SC09. You also can use a standard RJ45 cable to directly connect FS-ETH-SC09 and the computer, no need crossover cable, this product has auto-polarity discrimination function for the RJ45 cable.

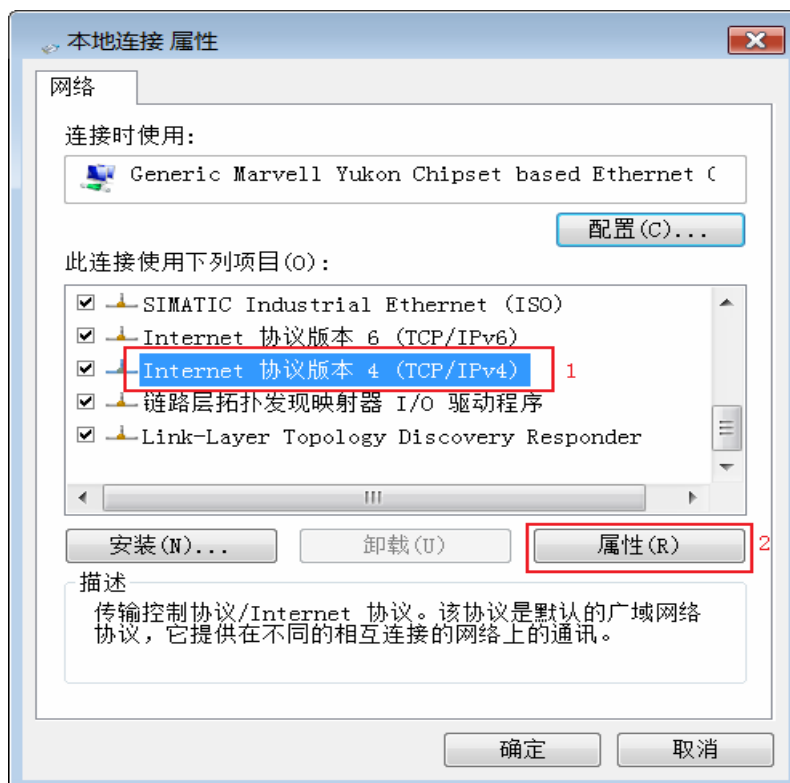
The same local area network (router) can connect multiple FS-ETH-SC09, but the same IP address is not allowed, there will be conflicts if the same IP, and it only shows one of IP and abnormality.

Any time you can press the Default button on the FS-ETH-SC09 to restore the setting to factory default.

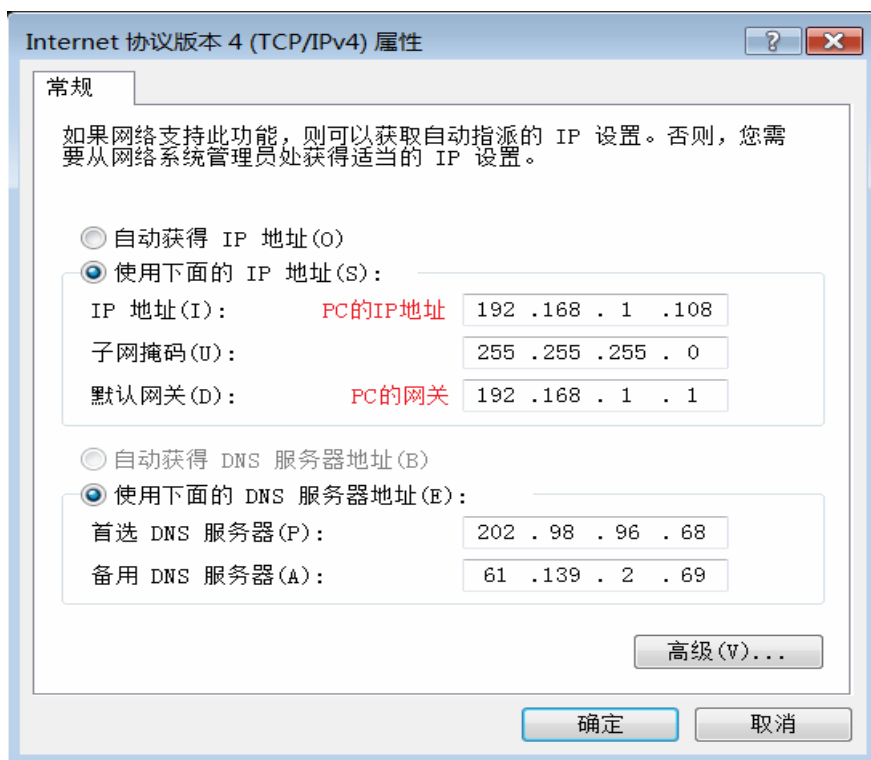
IP=192.168.0.250, Username=admin, Password=admin

You need to check your computer's IP address and gateway address, and confirm your computer is in the normal Ethernet/Internet access, in the next setting, you need to set the gateway of FS-ETH-SC09 as same as the gateway of computer and router, that is to say, the FS-ETH-SC09 and computer are in the same subnet, all equipments in this subnet and routers have the same gateway.

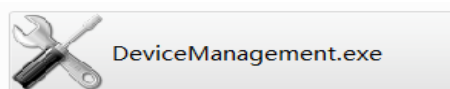
Right-click Network Neighborhood> View Network Connection> Properties, then pop up "Local Area Connection Properties" window:



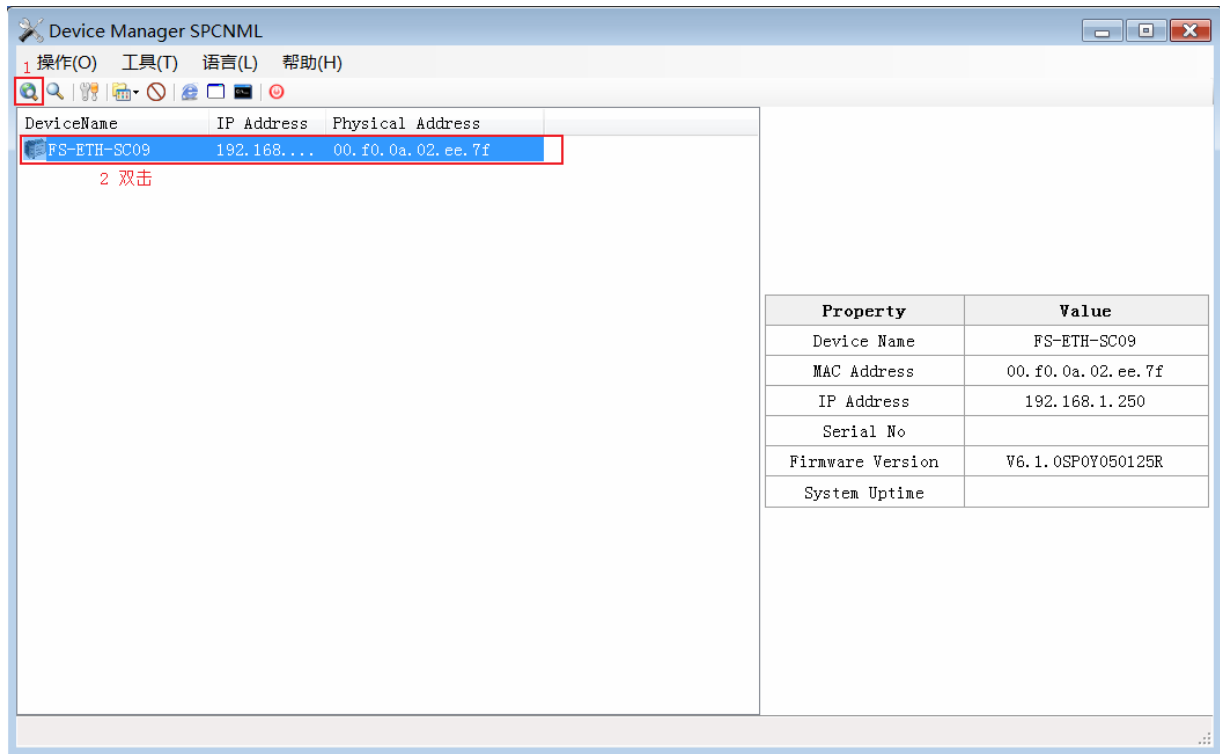
Select the General page; click the “Properties” button then pop-up the following window, record the IP address and the gateway of the computer for later use:



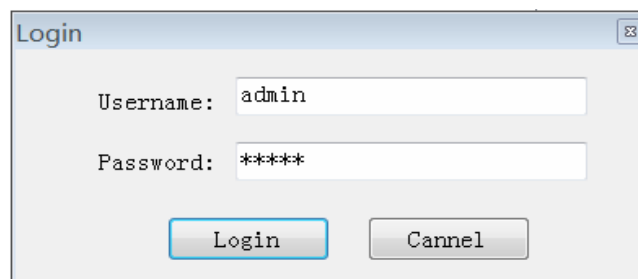
Copy the OEM Device Manager_SPCNML.rar file on the CD to your hard disk and extract it to the current folder, do not modify the folder name “OEM Device Manager_SPCNML” which store the setting software. Double click the following icon in the OEM Device Manager_SPCNML folder to run setting software:



Click the Search button in the upper left corner, and then search out all FS-ETH-SC09 connected to the router after a few seconds, as shown below:



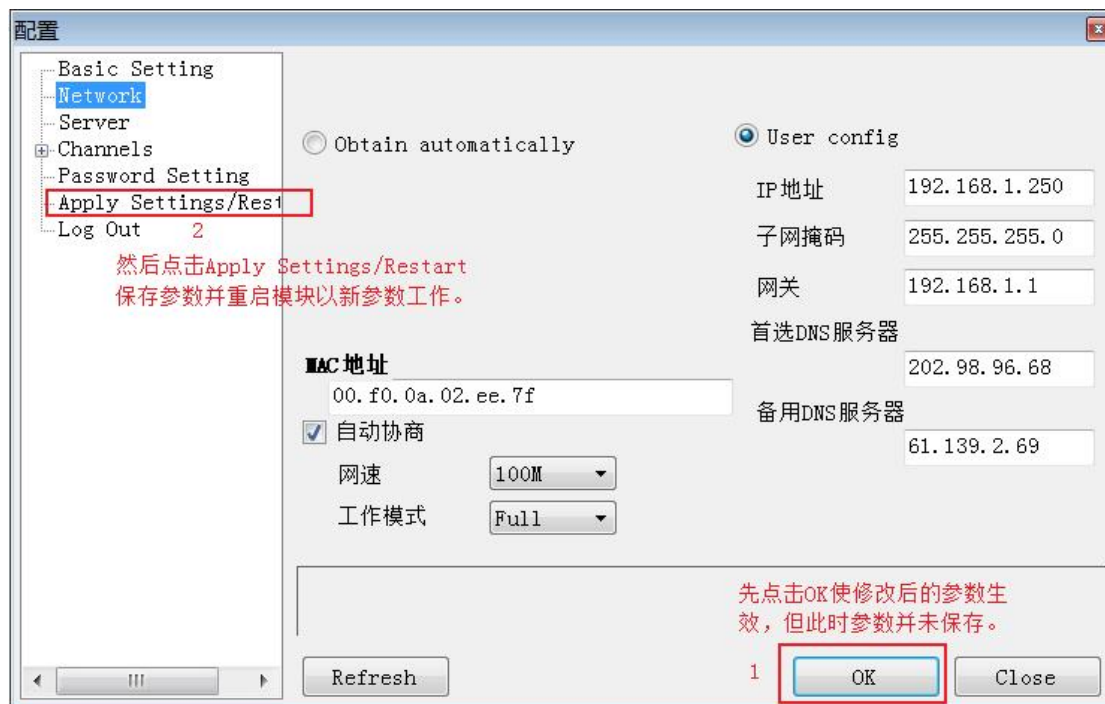
Double-click the FS-ETH-SC09, pop-up dialog box, enter your user name and password to enter the setting interface. The factory default setting: Username = admin, Password = admin



Click "Login" to enter the configuration interface.

You must firstly click "OK" to effect the modified parameters(parameters not saved at this time) after you modify the parameters in every interface ,then click the "Apply Settings / Restart" to save parameters and restart

the FS-ETH-SC09 to work with the new parameters and then exit the setting software. As shown below:



About the parameters configuration details, please read the "Device Manager Parameters setting software manual".

After you configure the FS-ETH-SC09 parameters, you need to run VCOMM virtual serial port software on the PC in order to **simulate** the ethernet interface of FS-ETH-SC09 as serial port (COM port) on the PC, then choose this serial port in the GX Developer software, as the same as you use the traditional SC-09 programming cable.

About the detailed instructions of the VCOMM virtual serial port software, please read < VCOMM virtual Serial Port software Manual>

The communication parameters of the Mitsubishi FX Series PLC programming port: data bits = 7, parity = EVEN (even parity), stop bit = 1, abbreviation as: 7E1, baud rate is 9.6Kbps.

Notice: FX3U Series PLC can use the baud rate from over 9.6Kbps to 115.2Kbps to communicate, but baud rate 9.6Kbps is still always used to communicate when the PC and PLC is connected for the first time, and inform the PLC will use the new setted baud rate to communication, the baud rate of FS-ETH-SC09 is not automatically adaptive, so the FS-ETH-SC09 can only use 9.6Kbps baud rate.

Firstly set FS-ETH-SC09 serial port parameters in parameters setting software , where the serial port protocol box "RS232" option is supporting RS232/RS485/RS422 communication and must ensure that the serial port parameters and the FX series PLC's serial port parameters are the same, Otherwise, It can't normally communicate.



(5)GX Developer software setting

Click the main menu "Online \ Transfer Settings" to set the COM port = FS-ETH-SC09 simulated COM port in the VCOMM virtual serial port software , the transmission speed = 9.6Kbps. Then you can use as the traditional SC-09 programming cable, and you can upload, download and compare the program data

GX Developer and PLC communication sometimes may appear abnormal communication error if you use Vista operation system, which is due to Vista operating system with poor compatibility, so we do not recommend to use Vista operating system



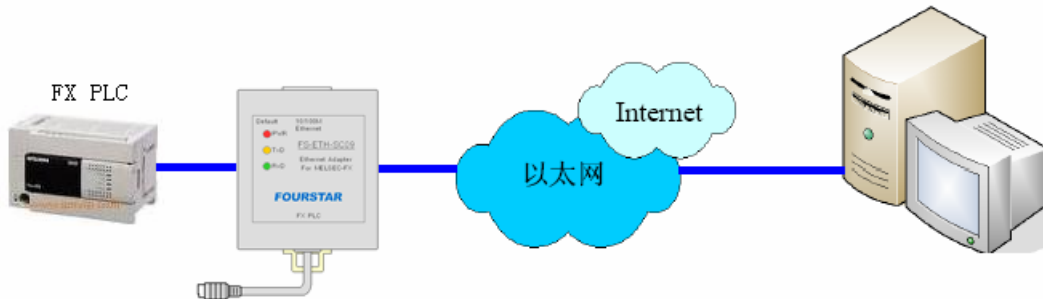
The application of FS-ETH-SC09 is very flexible and diverse, not limited to examples described below. You can use the FS-ETH-SC09 to connect the FX Series PLC to the Ethernet in order to achieve the data communication from PLC to PC, PLC to PLC, multiple PLCs to PC and among multiple PLCs etc. It can also be achieved the worldwide data communication through the Internet, or wireless data communication through wireless LAN, 3G network card, 3G router.

(6) The usage in the LAN

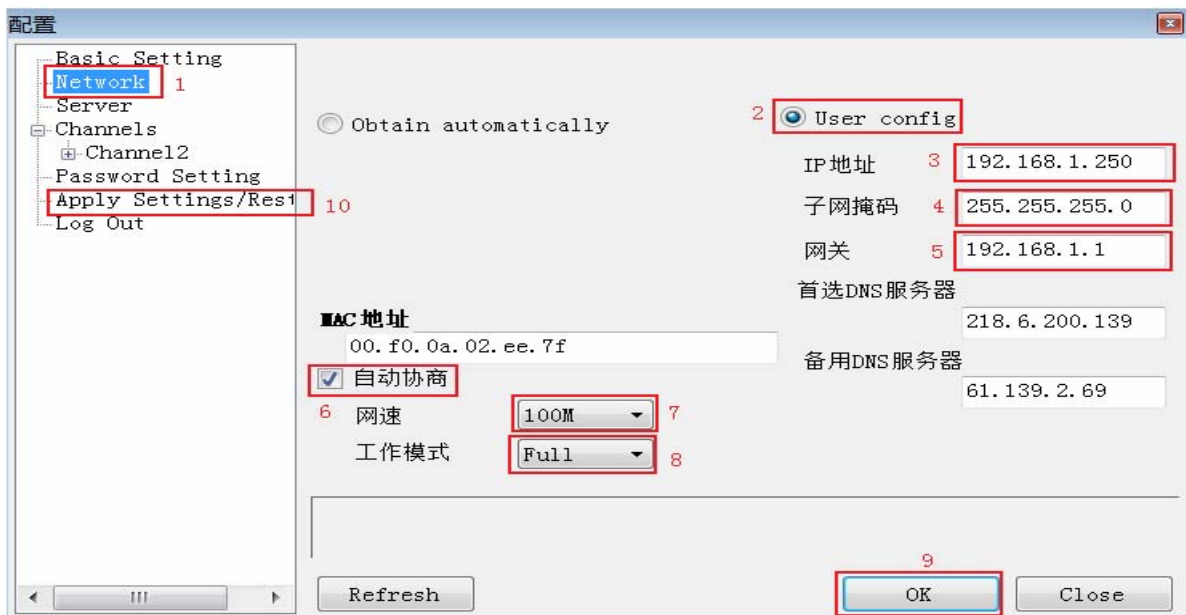
LAN communication generally refers to the same gateway, that is to say, the communication is among multiple Ethernet devices which are connected to a same router.

The FS-ETH-SC09 communication in the LAN needs to ensure that PC, FS-ETH-SC09 and routers have the same gateway, The gateway: 192.168.1.1, the computer IP address: 192.168.1.108, FS-ETH-SC09 IP address: 192.168.1.250 in the following examples.

1. The communication between the PC and a FX in the LAN



Set the FS-ETH-SC09 network parameters, the gateway of FS-ETH-SC09, PC and router must be same, the DNS server needn't to be setted because you don't use the dynamic domain name on the Internet.

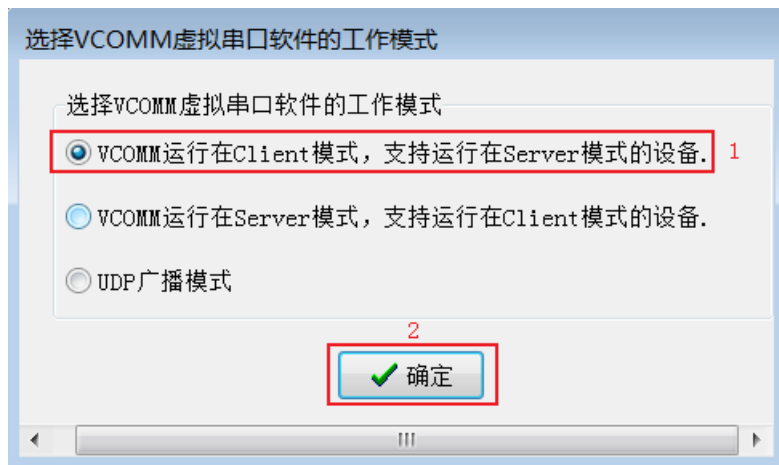


Set FS-ETH-SC09 serial port parameters: 9600bps, 7E1.

Set FS-ETH-SC09 working mode is TCP Server, port = 27011, waiting for clients to connect.



Run the VCOMM virtual serial port software on the PC, set the simulated virtual serial port on the PC. Select VCOMM as Client mode, initiatively to connect the server-side equipment. Choose the device detector to create the virtual serial port.



Add a virtual serial port, the remote server IP address = FS-ETH-SC09 IP address, remote server listening port = FS-ETH-SC09 port.

Click OK and exit the software and restart VCOMM, the client side VCOMM will take the initiative to connect the server side with IP address 192.168.1.250, port number 27011, it will create a new serial port COM3 after establishing the connection, and it will appear in the Device Manager of the Windows system, then you choose this serial port in your application software, such as GX Developer.

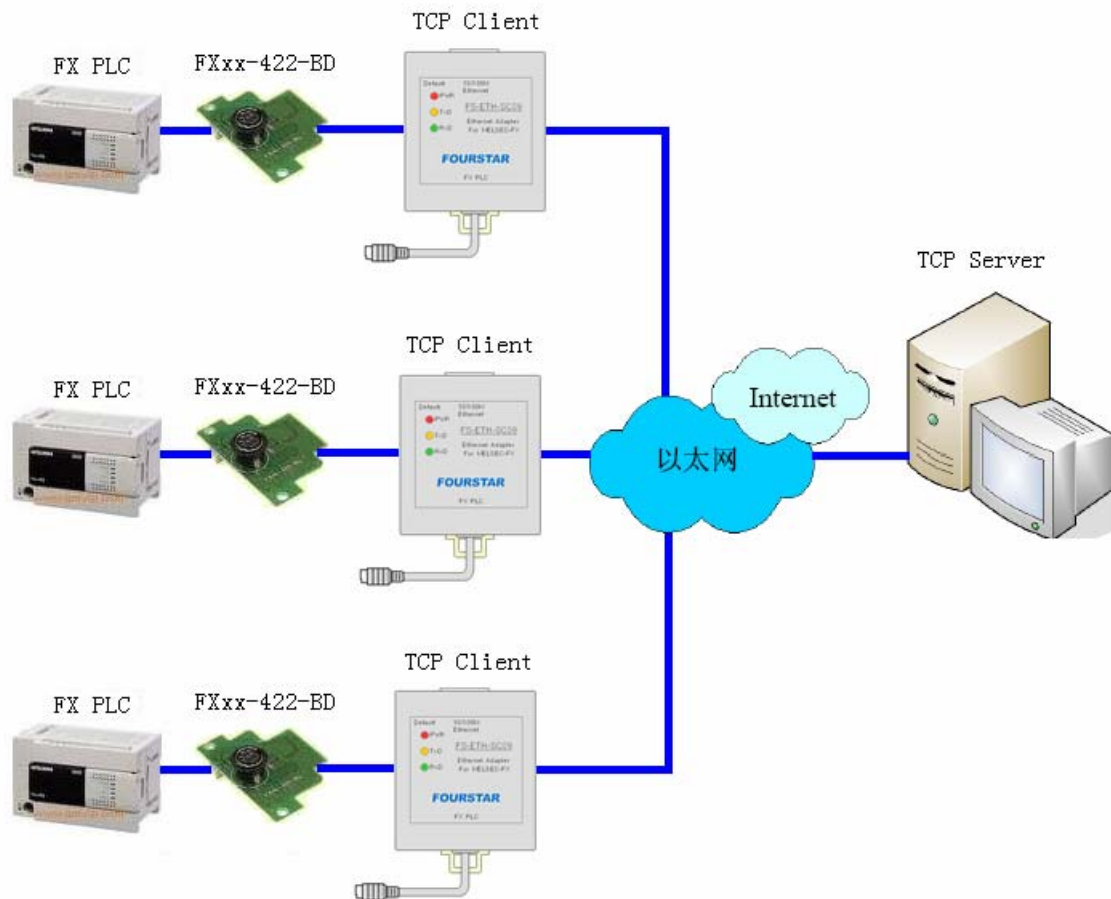
虚拟串口	远程Server地址及端口	运行状态	串口->网络(字节)	网络->串口(字节)	最后一次操作
COM3	192.168.1.250:27011	关闭, 0, N, 0, 1	0	0	TCP/IP连接已经建立

Of course you can use FS-ETH-SC09 to simulate each PLC as a COM port on the PC in order to achieve the data communication and monitoring operation between PC and multiple PLC s

(2)The communication among the PC and multiple FXs

There is a kind interface board with wide range of applications in Mitsubishi FX series PLC : FX1N-485-BD, FX2N-485-BD, FX3U-485-BD, FX3G-485-BD, all is called as FXxx-485-BD. You could use this interface board to

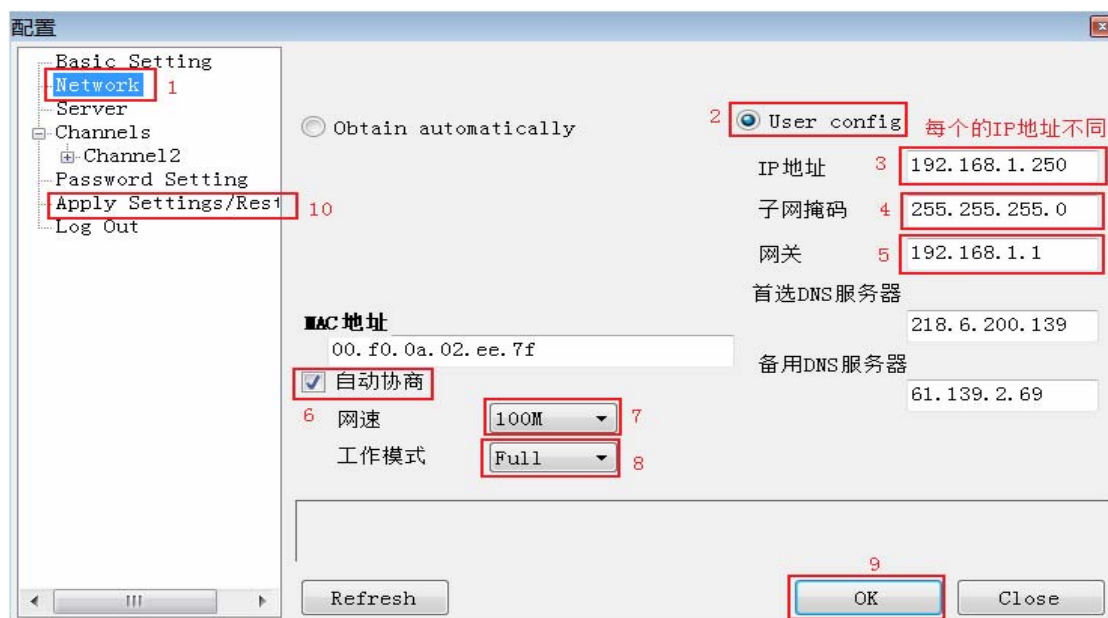
make up the 1:N communication network of PC to up to 16 pcs PLCs, or achieve N: N network communication among 8 pcs PLCs. Using the FS-ETH-SC09, you could upgrade the above RS485 communication network to Ethernet communication, the following picture is the Ethernet communication program among a PC and multiple PLCs.



FS-ETH-SC09 in the picture need to go through the connection between FXxx-422-BD interface board and the FX series PLC, mainly to facilitate the installation of FS-ETH-SC09, in fact it's the same as the usage of FXxx-485-BD. PLC software adopts non-procedure RS485 communication specification, not support other field bus protocols.

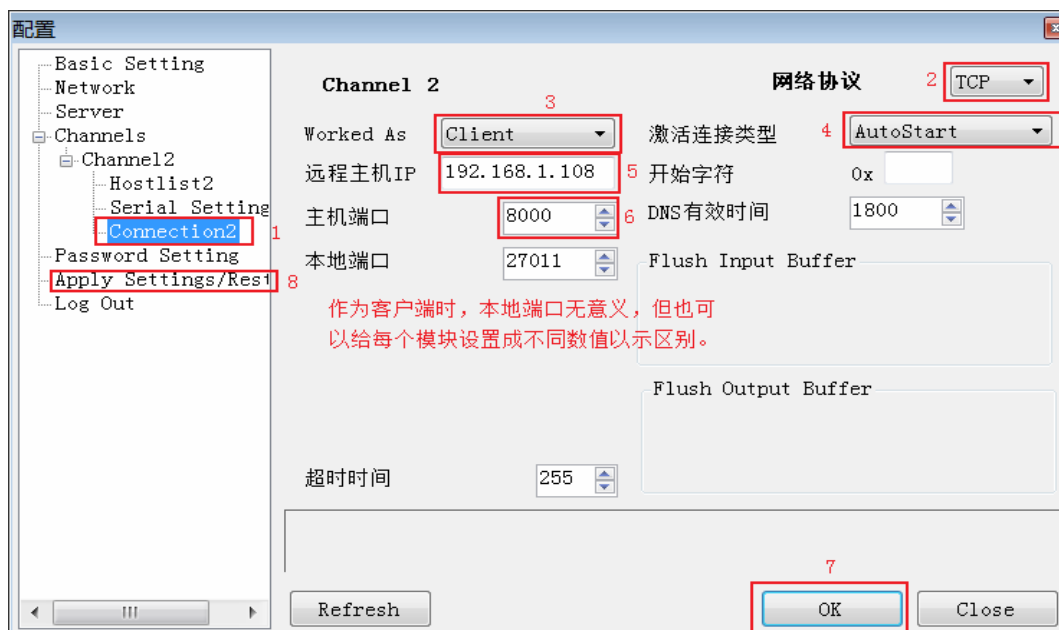
When multiple PLCs communicate with a PC via Ethernet, you need to set every FS-ETH-SC09 connected with PLC as TCP Client, set the PC as the TCP Server, let every client FS-ETH-SC09 takes initiative to connect the server PC. When VCOMM Virtual Serial Port Software work as TCP Server, it allows unlimited number of connected clients.

Set the FS-ETH-SC09 network parameters, the gateway of FS-ETH-SC09, PC and router must be same, the DNS server needn't to be setted because you don't use the dynamic domain name on the Internet. The picture below is a FS-ETH-SC09 setted parameters, when there are multiple FS-ETH-SC09, please note that each FS-ETH-SC09 IP address must be set to the different addresses.

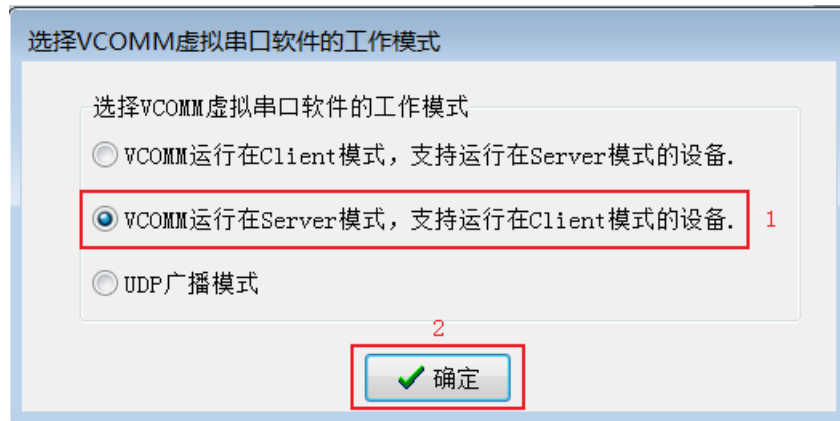


Set each FS-ETH-SC09 of the same serial port parameters with PLC.

Set each FS-ETH-SC09 as the TCP Client, the remote host IP = PC IP address, host port = VCOMM software port number. That is to say, each FS-ETH-SC09 have to connect to server-side VCOMM with IP = 192.168.1.108, port = 8000



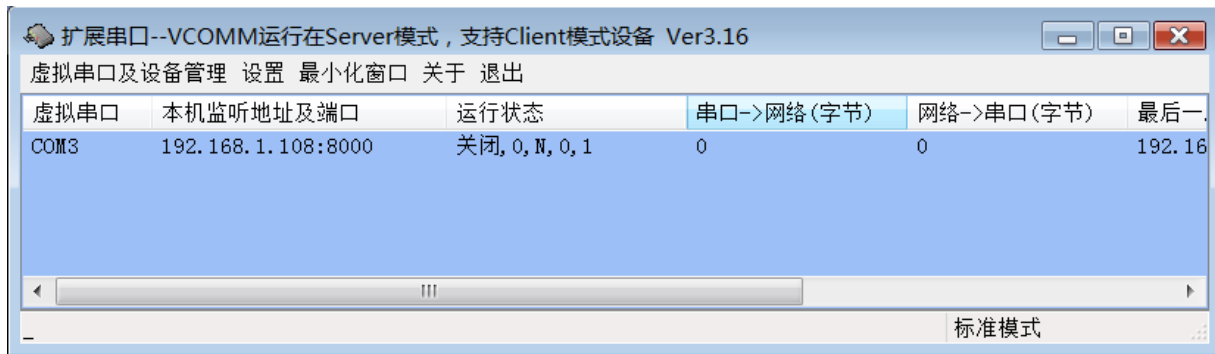
Run the VCOMM virtual serial port software on the PC, set the simulated virtual serial port on the PC. Select VCOMM as Server (server side) mode, accept client connection. Choose the device detector to create a virtual serial port.



Add a new virtual serial port, the monitoring IP address = PC IP address, client mode device try to connect the port = VCOMM software port, this is 8000.



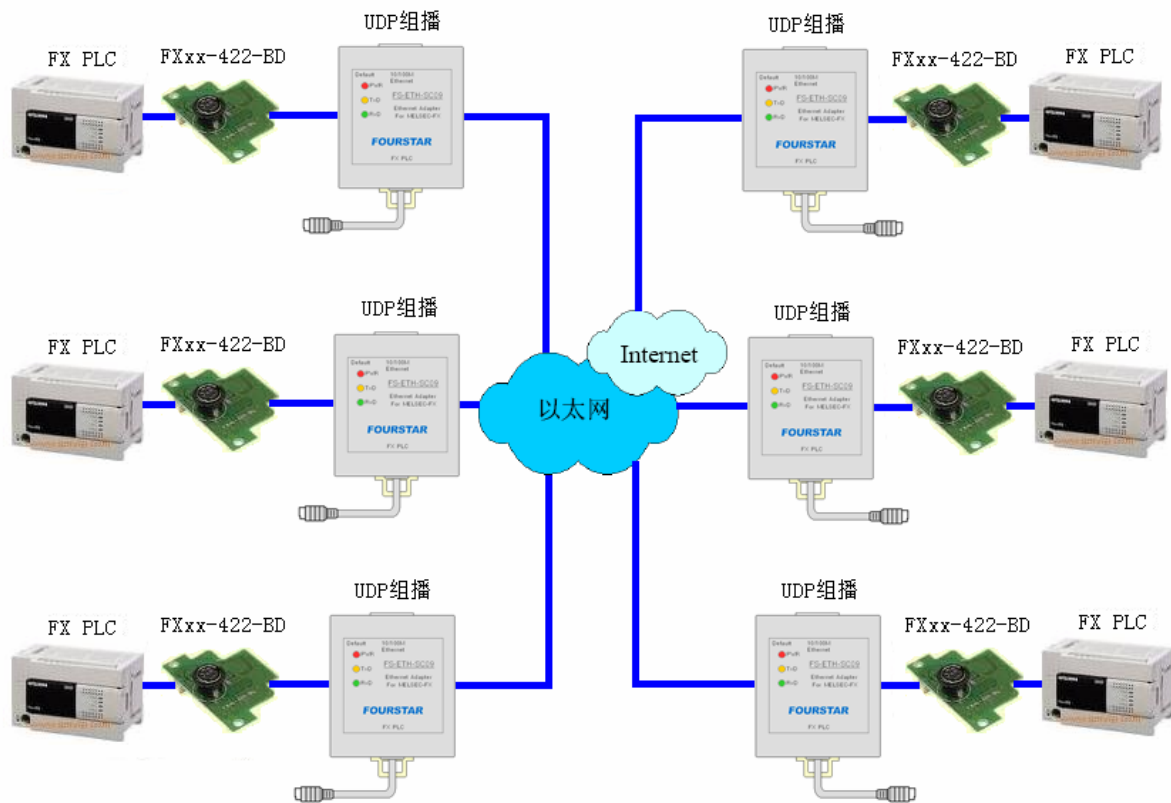
Click OK and exit the software and re-run VCOMM, server side VCOMM will accept as many as client side FS-ETH-SC09 connections, and it's unlimited (only limited by the allowed PLC amount, that is up to 16 pcs PLCs). A new serial port COM3 will appear on the PC after the connection is established. And this serial port will also appear in the Windows System Device Manager, then you can choose this serial port in your applications



As for the PLC internal communication program and programming on the PC, it's the same as the usage of FXxx-485-BD, you can refer to Mitsubishi FX series PLC communication manual.

(3) The intercommunication among the multiple FXs

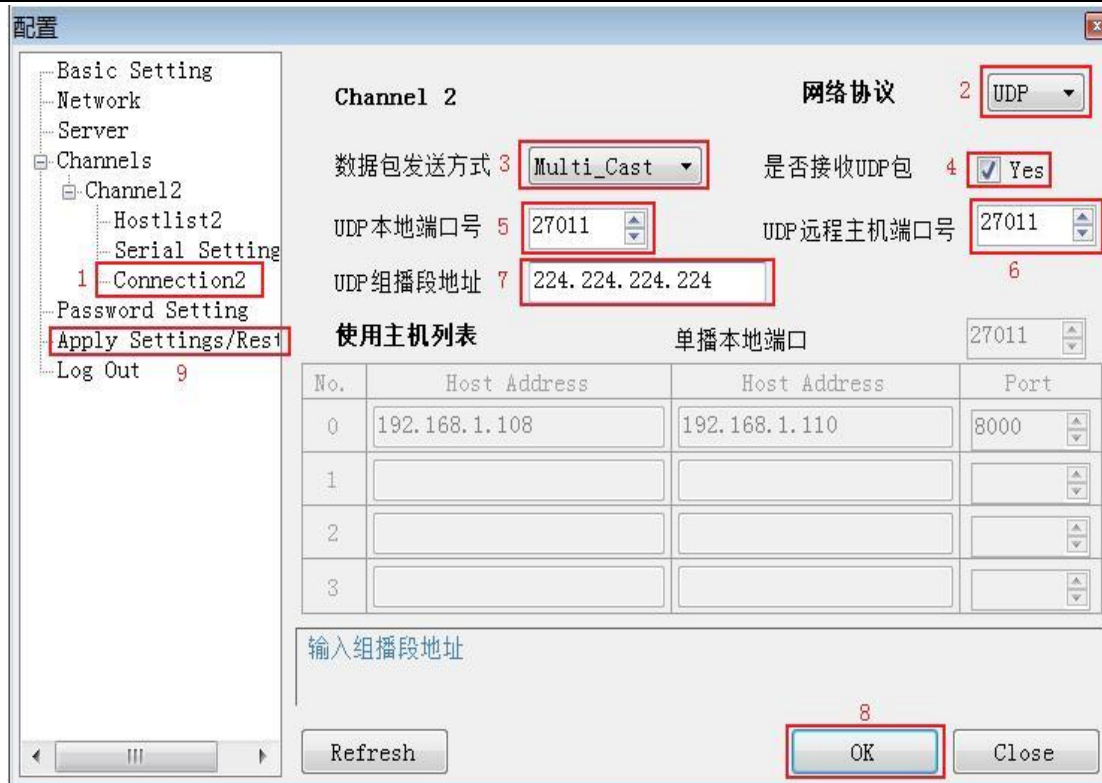
FS-ETH-SC09 in the picture need to go through the connection between FXxx-422-BD interface board and the FX series PLC, mainly to facilitate the installation of FS-ETH-SC09, in fact it's the same as the usage of FXxx-485-BD. PLC software adopts non-procedure RS485 communication specification, not support other field bus protocols.



When multiple FX series PLCs need to exchange data each other, of course UDP multicast mode is the best working mode. Using UDP multicast can directly replace the original multi-point RS485 communication. But please notice that at this time the FS-ETH-SC09 only supports free port RS485 communication mode of non-procedure communication specification, do not support any other fieldbus protocols which do not meet UART serial port specifications.

About the setting of Multicast address, here is a brief introduction. In fact Multicast address is the Class D IP address, that's to say, the first byte of the upper 4 bits of the IP address is the 1110, so the multicast range: 11100000.00000000.00000000.00000000 ~ 11101111.11111111.11111111.11111111, 224.0.0.0 ~ 239.255.255.255. Some addresses have been occupied by the system, so you had better use the address above 224.1.1.1.

Here We use the multicast section address 224.224.224.224, all modules added in the multicast group (224.224.224.224:27011) can send and receive data each other.



This mode is well suitable for upgrading the original RS485 network to Ethernet, the key of the mode is that all the FS-ETH-SC09 multicast section address of the same group must keep identical to local port and remote host port number, that is to say, multicast section address and the port number is same, then these FS-ETH-SC09 belong to the same group, the data sent out by any one will be received by other FS-ETH-SC09 of the same group, and there is no master-slave distinction. Under the Multicast mode, the FS-ETH-SC09 grouping is only logic, no need physical grouping, that is to say, there can be multiple groups in the same network, they are Independent of each other

Of course, you still need to set each FS-ETH-SC09 as a different IP address, every FS-ETH-SC09 serial port parameters are the same as PLC serial port parameters.

As for the PLC internal communication program and programming on the PC, it's the same as the usage of FXxx-485-BD, you can refer to Mitsubishi FX series PLC communication manual.

(7) Remote communication in the internet

FS-ETH-SC09 can achieve the worldwide remote communication through the Internet, it will use the external network IP address of the router, the router external network address is different when the router is started every time, because the router will be randomly assigned to one IP address from the Internet when it's powered every time, so this will result in trouble for remote communication through the Internet, There are two following

methods to solve this problem:

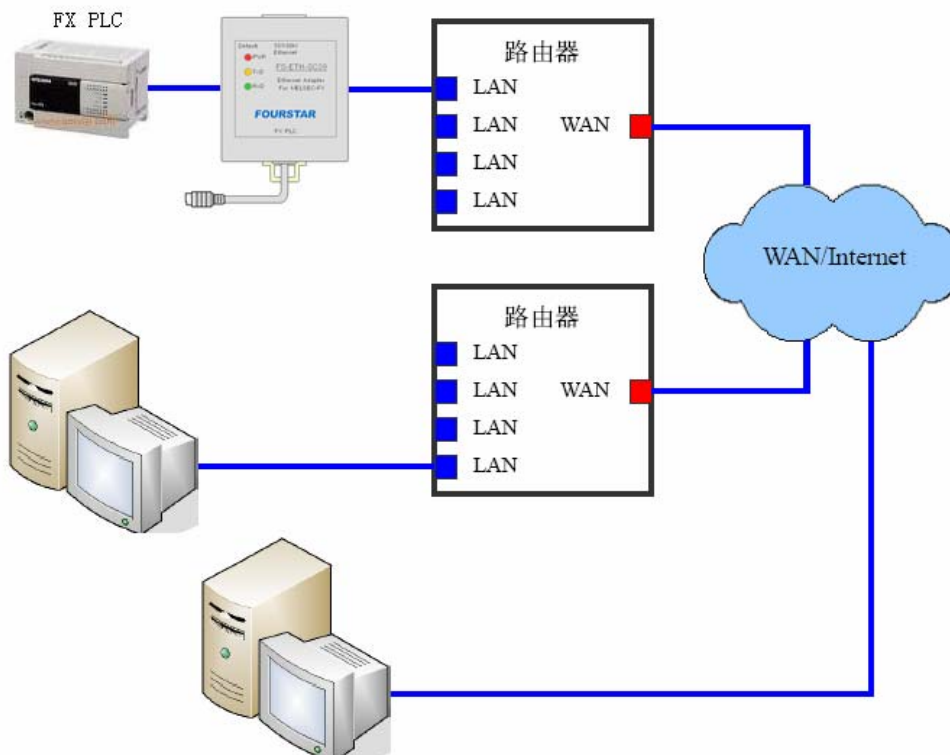
Apply to buy a fixed IP address from telecom, the fee will be higher.

Use the domain name resolution. you can apply for a free or paid domain name from dynamic domain name service provider, then use domain name instead of IP address; so that regardless of changes in IP address, domain name will point to IP addresses in real time, like as we usually visit the website .

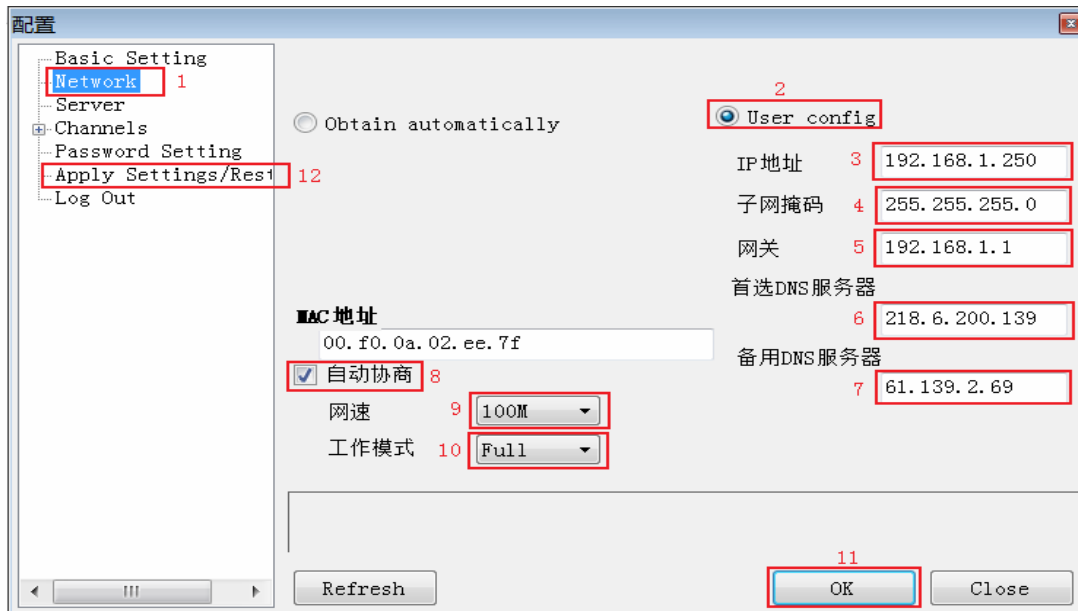
Some providers such as peanut shells and other dynamic domain name (DNS) service providers offer free and paid dynamic domain name service, you can consult them for their dynamic domain name service and charges issue. Firstly you need to apply a dynamic domain from DNS service provider , and download the Dynamic DNS client software, run this software on the host of Server mode. After the client software has been successfully started, Server host has solved the problem of dynamic IP address. Input the dynamic domain name in the IP input box of Client remote host, set the DNS server IP address as the local DNS server IP addresses, then you can use the dynamic domain name to visit the internet.

In the following example, use our free dynamic domain name: fourstar.vicp.cc, use the PC in Server-side and run the dynamic domain name client software, you can also use a router with the function of dynamic domain name .

The most economical way to achieve the remote communication in the Internet between the PC and the FX series PLC is that set the FS-ETH-SC09 as the client, set the PC as the server, install and run the DNS client software on the PC, and set the port simulated for PC on the router of PC side. As shown below:

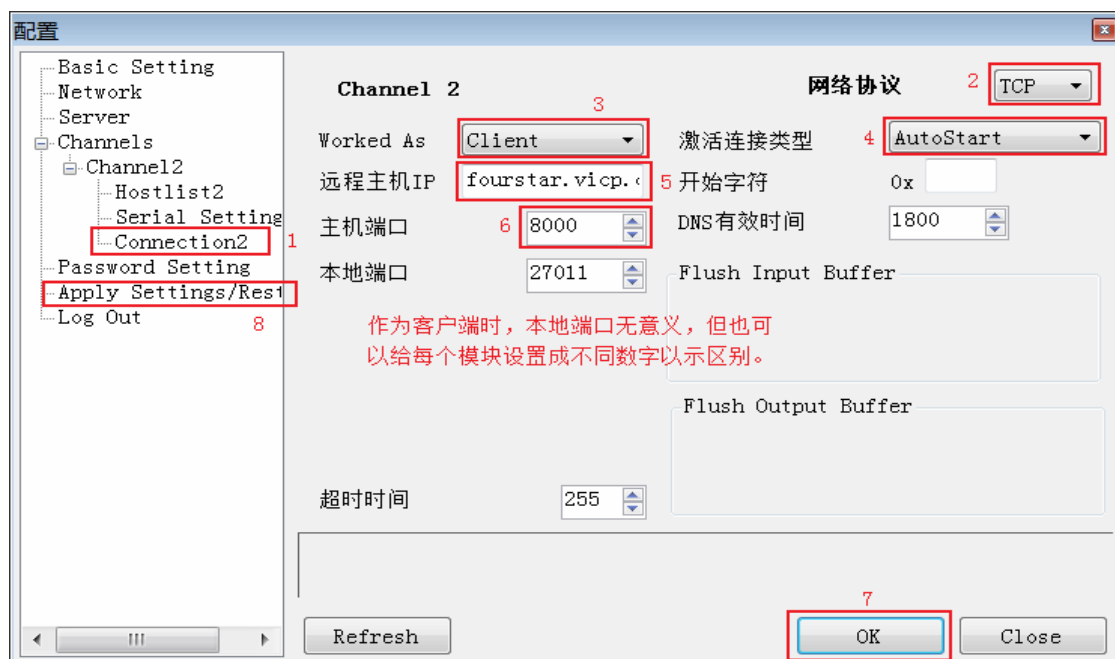


Set FS-ETH-SC09 network parameters, the gateway must be the same as the router connected with the FS-ETH-SC09, here you still need to properly set the IP address of DNS, different cities have different DNS Server IP, you can use all, but usually choose the local DNS, you can search these addresses from Internet, also can find them from the router which you are using.



Set the serial port parameters of FS-ETH-SC09 same with PLC, it's 9.6Kbps, 7E1, see the previous introduction.

Set FS-ETH-SC09 as TCP Client; remote host IP = domain name of remote PC, here is: fourstar.vicp.cc; host port number = VCOMM software port number.



Input the IP address of the router in the IE browser address bar of the remote PC and then appear the router setting interface, set the port simulation for PC, as shown below. If your PC does not use the router to access Internet, then this step can be omitted.



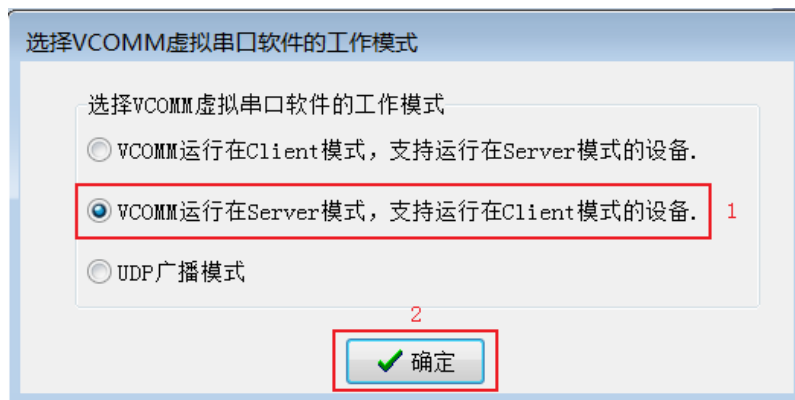
The meaning of the above settings is that when the client FS-ETH-SC09 visit and access the router's external network IP address (this address is automatically resolved by the domain name, you no longer cares about its change),router will automatically transfer this visiting to the VCOMM virtual serial port software on the PC with IP address 192.168.1.108, port 8000 which is connected to the router

After setting, click "Restart Router" button or re-power the router to work with the new parameters.

Run the client software on the PC, as shown below, the domain name fourstar.vicp.cc has been pointed to the external network IP address of the router.



Run the VCOMM virtual serial port software on the PC, set the simulated virtual serial port on the PC. Select VCOMM as Server mode, accept client connections. Choose to use the device detector to create a virtual serial port.



Add a new virtual serial port, the monitoring IP address = PC IP address, client mode device try to connect the port = VCOMM software port, here is 8000.

虚拟串口信息

TCP/IP模式虚拟串口参数

串口: COM3 1

请选择要监听的IP地址: 192.168.1.108 2

Client模式的设备尝试连接此端口: 8000 3

映射模式: Server

备注:

4

确定 放弃

*此操作将暂停全部数据转发，直到操作完成。

Click OK and exit the software and re-run VCOMM, the server VCOMM will wait the connection of client FS-ETH-SC09, then it will create a new serial port COM3 after establishing the connection, and it will appear in the Device Manager of the Windows system, then you choose this serial port in your application software, such as GX Developer.

虚拟串口	本机监听地址及端口	运行状态	串口->网络(字节)	网络->串口(字节)	最后一
COM3	192.168.1.108:8000	关闭, 0, N, 0, 1	0	0	192.16

标准模式

You can also set the FS-ETH-SC09 as the server, set VCOMM as the client, but the router connected with FS-ETH-SC09 need to have the DNS (domain name resolution) function, and also need to set the port simulated for the FS-ETH-SC09 on the router, this router is very common now in market. Or you can use a PC connected to the router which is connected with the FS-ETH-SC09 to run the peanut shell software to resolve the domain name. When the VCOMM software work as the client, you also could input the domain name directly in the remote server IP address, support DNS resolution.

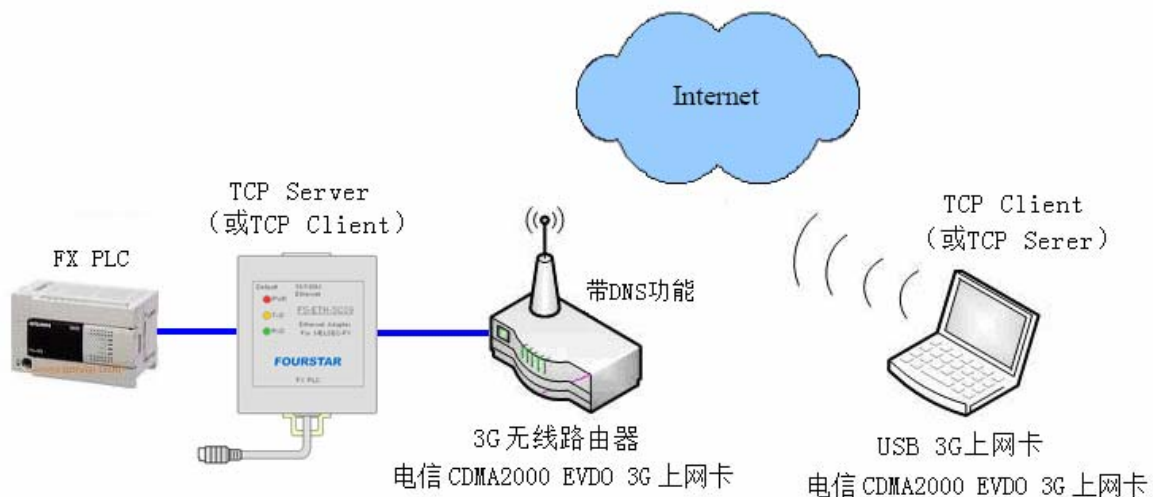
Of course you can use multiple FS-ETH-SC09 to simulate multiple PLC as multiple COM port on the PC (set the connection with multiple different ports), in order to achieve the data communication and control operation of the PC and multiple PLC respectively.

(8) Remote wireless communication in the 3G wireless internet

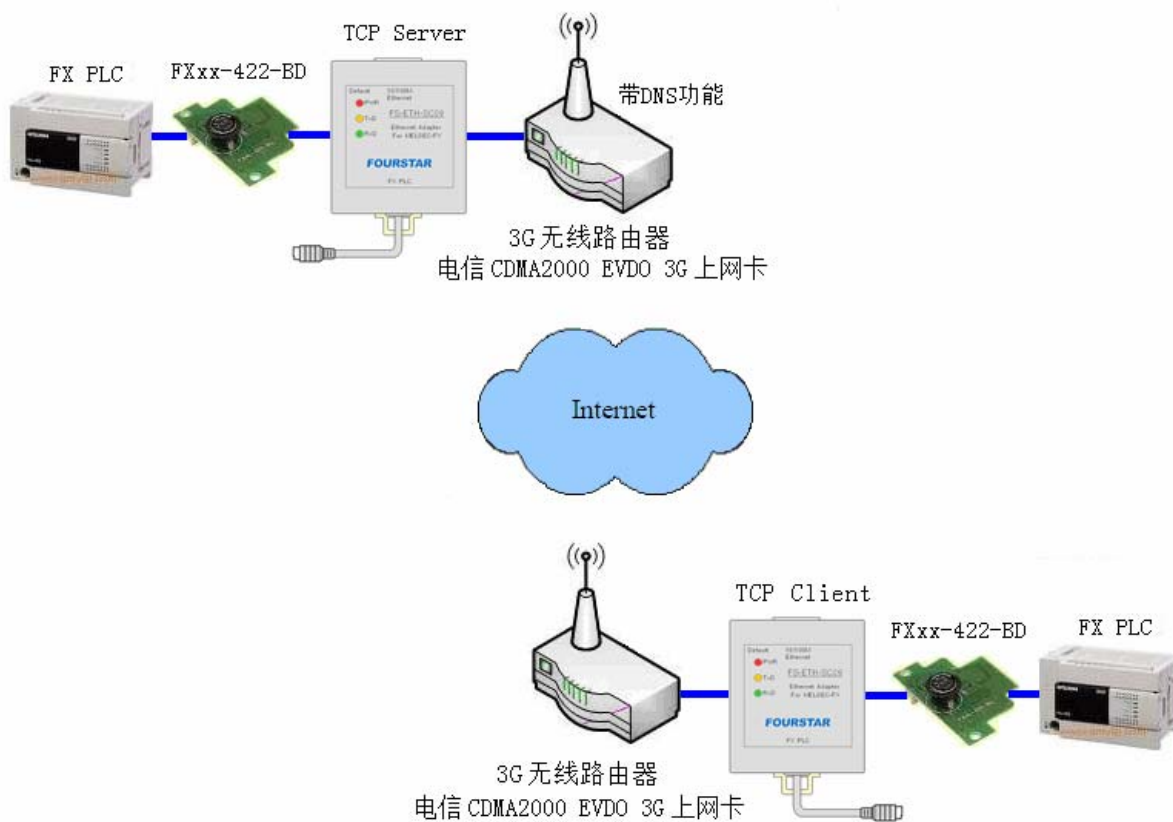
Using the wireless Internet platform of telecom, all the Ethernet to Serial port modules can be very convenient to achieve wireless communication, that is to say, you can use the wireless router to achieve the wireless communication in the LAN, you can also use the 3G router , 3G network card to achieve the worldwide Internet wireless communication. As long as any places where the wireless Internet is available, then the wireless communication between the FX series PLC and PC, FX series PLC and PLC can be achieved, which has extended a broader application range.

In fact when you use wireless communication, the setting method is almost as same as the previous introduction., only 3G router, wireless network card of different manufacturers may have some differences in the usage, so please read the corresponding product manual. When the FS-ETH-SC09 works as the server, it is best to use the 3G router with the function of dynamic domain name to connect the FS-ETH-SC09.

The following are solutions of wireless communication in the Internet wireless network platform. The both parties of communication can be both 3G wireless network, but also one is 3G wireless network, the other is the wired Internet.



PC与FX系列PLC在3G无线网络上远程无线通信



两台FX系列PLC在3G无线网络上远程通信

(9)Ordering Info

Product Name: **Mitsubishi FX PLC Ethernet Adapter**

Model: FS-ETH-SC09

(10)Appendix: the basic knowledge of the Ethernet

TCP / IP transport layer provides TCP and UDP, the two common agreement, they treat as TCP / IP network applications on the transmission mechanism. TCP provides a guaranteed and reliable information transmission, and UDP use the non-guaranteed and non-reliable method to transmit information.

1.TCP mode

TCP is a guaranteed connection based protocol, before transmitting, the equipment must first establish duplex connection, disconnect after data transfer is complete. Sending the data need to receive confirmation of the host then continue sending data, if not received confirmation of the host or data error, need a certain number of retransmissions. In this way it will be additional traffic, so slowly than UDP.

TCP communications, including the client (Client) and server (Server), the client take the initiative to connect to the server, the server can only be a passive client connections, once establish the connection, the client and server can be duplex data transfer at any time.

Our Ethernet to serial communication module using TCP mode including: TCP Server, TCP Client.

TCP Server (TCP Server) mode:

When the module works in the TCP Server mode, it does not take the initiative to connect to other devices, but listening on local port, and wait for client connections, if the client can establish a connection then will go on the duplex communications.

TCP Client (TCP Client) mode:

When the module works in the TCP Client mode, it will take the initiative to connect the setted TCP server in advance, if the connection is not successful, it will continue to attempt to reconnect, once the connection success the server will go on the duplex data communications.

2.UDP mode

UDP protocol is unreliable connectionless protocol, data transmission is not required to establish a connection, do not need to receive confirmation form the host for data transmission, so the UDP protocol does not guarantee the data sent to the target host packets are received correctly, for high reliability requirements of the occasion can use the higher level of communication protocol to ensure data is correct.

UDP is a relatively simple way of communication, it will not increase too much extra traffic, it can communicate faster than the TCP to provide real time communication. UDP does not need the server and client, both parties are on equal communication.

Our Ethernet to serial communication module using UDP mode including: UDP Uni_Cast, UDP Multi_Cast.

UDP unicast (UDP Uni_Cast) mode:

Module in the UDP Uni_Cast mode, it can be point to point duplex data transmission, although it can send data to several other hosts, but only one host can send data to the module back .

UDP Multicast (UDP Multicast) mode:

The modules in the network use the multicast ID is one between 224.0.0.0-239.255.255.255 address as its multicast group address, all the modules in the multicast network can be duplex data transfer, and no master slave distinguish, This mode is easy for old RS485 network upgrade to Ethernet.